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# PHSX 320.01: Classical Mechanics

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## Physics 320 - Classical Mechanics

Spring 2014

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Office Hours	Monday	11:00 to 12:00
	Wednesday	3:00 to 4:00
	Thursday	8:30 to 9:30

Text An Introduction to Mechanics 2nd edition, Kleppner and Kolenkow

In addition there will be three weeks of presentation by me of material that is beyond the scope of your text. These will be the last three weeks of the semester.

This course has traditionally been one of, if not the most, time consuming and difficult of the undergraduate curriculum for physics majors. A new level of mathematical sophistication is required and the analysis of the world around us becomes far more subtle. Your reward for a great deal of hard work will be a foundation upon which much of the structure the many parts of your education yet to come may firmly rest.

In this course, as in many others, there are two large aspects to what I want you to accomplish. The first is to gain new knowledge and the second is to learn to apply that new knowledge. There will be a shift in how these tasks will be addressed. I want you to take on more individual responsibility for the former. The latter will take over the majority of our class time.

Our text is highly readable for students at your level and we are going to cover the material in nearly all

of it in just 10 weeks. By the beginning of the second class day devoted to a given chapter you are to have carefully worked your way through the expository material in the book. This, along with a single lecture that will address the most difficult parts, is to be the source on your new knowledge. We will then have one or two class days devoted to problem analysis. This is to be a cooperative endeavor that actively involves all of us. The goal is to practice working our way through the "translation problem." The material for problem analysis days will be handed out to you at the beginning of that period - these are not recitation or demonstration days. We will get these carefully chosen problems going but, as a rule, we will not finish out the details in class.

Your problems sets will then consist of the problem analysis day material plus additional problems that will be for you to work through from the beginning with insight gained during our time in class.

The semester grades will be determined as follows.

Problem sets	40%
Midterm exams	20% each for two exams
Final exam	20%

The midterm exams will each have three parts.

1. **In-class** Short questions - definitions, problem set up, isolated problem parts, etc.
2. **Take-home** Two fairly difficult, homework-like problems that you will be able to work on over a weekend with access to your textbook, notes, and problem sets.
3. **Oral exam** You will have three problems given to you two days in advance. When you come for the exam, one of the problems will be chosen at random and you will present, without notes, your solution to the problem. This is not an exercise in memorization; if you understand the solution you will have no trouble presenting it.

We will discuss this as the first exam draws near.

The final exam will be entirely in-class during our scheduled time on Tuesday May 13 at 3:20pm.

I will give you a model for how to write up your problem sets. In brief, I will insist that they be neat, readable, and correct. Each problem set will be due on Wednesday at the beginning of class. As you give them to me I will hand to you a copy of my solutions which will also be neat, readable, and correct. If you do not have your homework to me ( or my mailbox in the physics office ) by the time it is due, you may turn it in the following week. I will assume that you have neatly copied the solutions I handed out the previous week ( I do feel that significant learning can occur during the copying process. ) and you will receive a maximum score of 50% of the class average for that assignment. You may not turn in the homework more than one week late.

## Standard Syllabus Material

**[Here is a link to the spring 2014 calendar](#)**

**[http://events.umt.edu/?calendar\\_id=27&upcoming=upcoming&](http://events.umt.edu/?calendar_id=27&upcoming=upcoming&)**

Students are expected, when selecting and registering for their courses, to make informed choices and to regard those choices as semester long commitments and obligations. After registering and through the **first fifteen (15) instructional days of the semester**, students may use the internet (<http://cyberbear.umt.edu>) to drop and add courses or change sections and credits. Fees are reassessed on the fifteenth day of the term. Added courses and credits may result in additional fees. For courses dropped by the fifteenth instructional day, no fees are charged and courses are not recorded. (For deadlines and refund policy for withdrawal from all courses, see the Withdrawal sections of this catalog.) An instructor may specify that drop/add is not allowed on the internet. A drop/add form is used to make changes in these courses, if approved by the instructor. After adding a course, the credit/no credit grading option or auditor status may be elected on the internet or on a form available at the Registration Counter in Griz Central in the Lommasson Center. These options are not allowed for some courses as identified in the Class Schedule. Change of grading option to audit is not allowed after the 15th instructional day. Beginning the **sixteenth (16) instructional day of the semester through the thirtieth (30) instructional day**, students use paper forms to drop, add, and make changes of section, grading option, or credit. The drop/add form must be signed by the instructor of the course and the student's advisor. The signed drop/add form must be returned to the Registration Counter (or the Registrar's Office at the College of Technology) no later than the thirtieth instructional day. A \$10.00 processing fee is charged for each drop/add form. Added courses and credits may result in additional fees. There are no refunds or reductions of fees for courses dropped and grades of W (withdrew) are recorded. Beginning the thirty first (31) instructional day of the semester through the last day of instruction before scheduled final examinations, students must petition to drop, add, and make changes of section, grading option, or credit. The petition form must be signed by the instructor of the course and the student's advisor and, in the case of drops only, by the dean of the student's major. A \$10.00 processing fee is charged for each petition. Added courses and credits may result in additional fees. There are no refunds or reductions of fees for courses dropped, and the instructor assigns a grade of WP (withdrew/passing) if the student's course work has been passing or a WF (withdrew/failing) if the course work has been failing. These grades do not affect grade averages but they are recorded on students' transcripts. Documented justification is required for dropping courses by petition. Some examples of documented circumstances that may merit approval are: registration errors, accident or illness, emergency, change in work schedule, no assessment of performance in class until after this deadline, or other circumstances beyond the student's control. The opportunity to drop a course for the current term or alter grading option for such a course ends on the last day of instruction before scheduled final exams. Dropping a course taken in a previous term or altering grading option or audit status for such a course is not allowed. The only exceptions are for students who have received a grade of NF (never attended) or new students unfamiliar with the drop process who have ceased attendance before the sixteenth day of instruction and can provide to the Registrar's Office instructor verification of non-attendance.

### **Class Attendance/Absence Policy**

Students who are registered for a course but do not attend the first two class meetings may be required by the instructor to drop the course. This rule allows for early identification of class vacancies to permit other students to add classes. **Students not allowed to remain must complete a drop form or drop the course on the internet (<http://cyberbear.umt.edu>) to avoid receiving a failing grade.** Students who know they will be absent should contact the instructor in advance. Students are expected to attend all class meetings and complete all assignments for courses in which they are enrolled. Instructors may excuse brief and occasional absences for reasons of illness, injury, emergency, or participation in a University sponsored activity. (University sponsored activities include for example, field trips, ASUM service, music or drama performances, and intercollegiate athletics.) Instructors shall excuse absences for reasons of military service or mandatory public service. Instructors may establish absence policies to conform to the educational goals and requirements of their courses. Such policies will ordinarily be set out in the course syllabus. Customarily, course syllabi will describe the procedures for giving timely notice of absences, explain how work missed because of an excused absence may be made up, and stipulate any penalty to be assessed for absences.

### **Academic Honesty**

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the university.

All students need to be familiar with the Student Conduct Code. The Code is available for review online at <http://www.umt.edu/SA/VPSA/index.cfm/page/1321>.